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UNCLAS KIGALI 000531

EEB JOAN WADELTON

E.O. 12958: N/A  
TAGS: [ECON](#) [EINV](#) [ENRG](#) [ETRD](#) [RW](#)  
SUBJECT: RWANDA PUSHING FOR "CLEAN AND GREEN" ENERGY

REF: KIGALI 141

¶1. (U) SUMMARY: The Government of Rwanda (GOR) is pressing forward with development of diversified renewable energy sources to satisfy the majority of its power generation needs by 2012. Methane gas from Lake Kivu, hydroelectric and geothermal power will provide the bulk of its "on the grid" electrical needs, but solar and biogas will also play a key role in providing light, cooking fuel and power to more remote rural areas. Power efficient appliances and lighting will help reduce consumption. Already, 80 percent of wood fuel comes from "renewable" forests. END SUMMARY.

¶2. (U) During an August 15-19 visit, EEB Senior Economic Advisor Joan Wadelton met with government officials, health clinics, entrepreneurs and NGOs to learn more about Rwanda's progress in developing renewable energy. Government officials in the Ministry of Infrastructure (MININFRA) told her they are working to make Rwanda 100 percent "clean and green" by 2012. The officials acknowledged that 45 percent of the country's current 69 MW power production comes from diesel and heavy fuel generators, but said they hoped to replace this capacity with hydroelectric and clean burning methane power by 2012.

#### Rwanda on Track to Clean and Green Power

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¶3. (U) MININFRA Donor Coordinator Eva Paul told Wadelton Rwanda is on track to achieve its energy goals and that "the political will is there." United States-based Contour Global is working to extract methane gas accumulating in Lake Kivu to provide 100MW of power to the national grid by 2012 (reftel). Paul said methane is "renewing" at a rate of 15 percent annually and added that new investment in follow-on Lake Kivu methane projects could add an additional 200 MW within five years. Construction of two new hydroelectric plants will add 37MW to the national grid within three years. Additionally, the governments of Rwanda, the Democratic Republic of Congo (DRC), Burundi and Tanzania are planning additional multinational hydro projects in Rusizi and Rusumo, she said.

¶4. (U) Rwanda's geothermal potential is still in the exploratory stage but initial tests indicate strong potential in the Northern Province around Volcanoes National Park. Paul explained that Kenyan-Kengen has discovered "reservoirs" at above 150 degrees centigrade at depths of 4,000 meters. She added that initial surveys indicate the reservoirs are commercially viable.

#### Cow Power

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¶5. (U) Addressing "off grid" energy needs, the GOR has begun

to supply 150,000 rural families with biogas digesters fed by cow dung and household waste. The digesters generate enough methane gas to power cook stoves and gas lights. The gas can also be used to power small refrigerators. MININFRA Senior Advisor Gerard Hendriksen explained that Rwanda has already equipped all of its prisons with biogas digesters and plans to install similar equipment in the country's secondary schools. Hendriksen added that 80 percent of Rwanda's cooking fuel currently comes from "reforested" eucalyptus wood but that biogas has health and convenience advantages over wood fuel.

¶6. (U) NGOs and development agencies such as USAID are assisting the GOR electrify off-grid health clinics and administrative centers with solar power. Although only 6 percent of the population currently has access to the national power grid, the GOR plans to electrify all health clinics and administrative centers by 2012 using solar power where necessary. The government also wants to set up "solar hubs" in rural areas that would provide power to rural communities by charging batteries that could be used to light homes at night.

#### American Entrepreneurs Lead the Charge

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¶7. (U) American entrepreneurs are taking the lead in providing solar power solutions to rural communities. Sam Dargan, CEO of Great Lakes Solar Energy, told Wadelton he was interested in providing solar appliances to rural communities--not for social or conservation reasons--but because it was profitable. Dargan explained that most rural communities in Central Africa were desperate for light and basic solar powered appliances such as cell phone chargers. He estimated the market for such appliances to be nine million consumers in Rwanda alone. Dargan noted that solar-powered lights sold at \$20 were much cheaper than kerosene lights, which typically cost a family \$10 per month in kerosene.

¶8. (U) Josh Kefauver, COO of United States-based Manna Energy, is working with the GOR to equip rural communities and secondary schools with solar powered water purifiers using ultraviolet light to kill harmful bacteria. Manna Energy hopes to earn a 20 percent return on investment by cashing in carbon credits earned by using solar power--rather than traditional wood-burning stoves--to purify water. Manna Energy will also equip secondary schools with fuel-efficient cooking stoves that will reduce wood consumption by 70 percent, Kefauver said.

#### Donor Good Intentions Not Always Helpful

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¶9. (U) Both government officials and entrepreneurs told Wadelton that successful renewable energy projects must have a private sector market orientation to be sustainable. Dargan noted that most "donor" models were not market-oriented and that as a result donors were not "held accountable" for poor product design or service. Dargan, citing an example of donor-provided solar powered cell phone chargers to health care workers, said such practices made it more difficult for him to sell similar products for a profit. Free donor-provided resources have inhibited private sector investment in renewable energy, he stated.

#### Regulatory Environment Crucial

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¶10. (U) Anthony Simm, Executive Manager for Stadtwerke Mainz (a German company operating the largest solar array in Rwanda--or Africa) told Wadelton the right "regulatory" environment was crucial to encouraging investment in renewable energy. Simm explained that solar energy could not compete with fossil fuel power at current prices if the local regulatory authority did not factor in the non-commercial benefits of solar power--such as diversifying energy sources

and reducing carbon emissions. Simm said the high up-front installation costs of solar power could take twenty-thirty years to pay off, unless the regulatory authority offered subsidies or tax incentives to encourage such investment.

¶11. (U) COMMENT: Rwanda is moving rapidly and thoughtfully towards a "clean and green" energy future. Encouragement of the private sector will be crucial to insure the effort maintains its pace and is sustainable. Careful implementation of regulatory measures encouraging investment in green energy could help. Donors, in their eagerness to develop Rwanda, should be careful not to distort the emerging market for renewable energy products by giving them away for free when there is a private sector option.

¶12. (U) Senior Economic Advisor Joan Wadelton has not cleared on this cable.

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